**IN THE CLAIMS:**

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

**Claim 1. (Currently Amended)** A liquid metal evaporation source for use in Molecular Beam Epitaxy (MBE) or vacuum deposition processes, said source comprising:

an evaporator configured to evaporate liquid metal, said evaporator comprising a first cylindrical body from a first end to a second end, said evaporator coupled to a first heater element of a plurality of heater elements ~~for maintaining said evaporator~~ maintained at a first temperature for evaporating said liquid metal at said first temperature;

a hollow reservoir cylinder for holding said liquid metal, wherein said hollow reservoir cylinder comprises a cylindrical piston, said reservoir cylinder comprises a third heater element of said plurality of heater elements ~~for maintaining said liquid metal~~ maintained at a third temperature, wherein said third temperature being lower than said first temperature for holding said liquid metal in a liquid form;

a hollow transport tube for transporting said liquid metal from said hollow reservoir cylinder to said evaporator, wherein said hollow transport tube includes a second heater element of said plurality of heater elements ~~for maintaining said hollow transport tube~~ maintained at a second temperature, wherein said second temperature being less than said first temperature and greater than said third temperature, said hollow transport tube connecting said first end ~~evaporator~~ and said reservoir cylinder;

a nosecone coupled to said evaporator, said nosecone comprising a second cylindrical body, at least one annular ring coupled to an external surface of said second cylindrical body and

a tapered bore from a first opening adjacent to said liquid metal to a second opening remote from said liquid metal, wherein said nosecone disperses said evaporated liquid metal from said first opening to said second opening; and

at least one conducting probe coupled to said nosecone ~~configured to measure and regulate~~ for regulating a height of said liquid metal within said evaporator, wherein said at least one said conducting probe comprises a third end coupled to said second cylindrical body and a fourth end residing between said first opening and a surface of said liquid metal for preventing condensation of said evaporated liquid metal on said second cylindrical body;

wherein each of said plurality of heater elements includes a thermocouple configured to sense the temperature and control the temperature of said plurality of heater elements;

wherein said reservoir cylinder and said piston are configured to prevent leakage of liquid metal through the mating surfaces of said reservoir cylinder and said piston;

wherein said at least one conducting probe is configured to sense contact with liquid metal in said evaporator by making a low resistance electrical contact;

wherein said at least one said conducting probe controls a position of said piston in said reservoir cylinder via an automatic feedback control circuit to regulate the level of said liquid metal in said evaporator to maintain a constant evaporation rate of said liquid metal from said evaporator at a fixed evaporator temperature, and controls a position of said piston in said reservoir cylinder to transport said liquid metal from said reservoir cylinder to said evaporator if said conducting probe receives a signal from said automatic feedback control circuit, wherein said signal is indicative of said liquid metal being depleted in said evaporator[[,]];

wherein said at least one annular ring is coupled to said second end for sealing said second end to said nosecone; and

wherein said reservoir cylinder, said transport tube, and said evaporator are integrally connected within a vacuum system configured to melt, transport, and evaporate liquid metal at ~~very high~~ temperatures ~~up to 2500 C~~ above the melting point of said liquid metal.

**Claim 2. (Original)** An evaporation source according to claim 1, wherein at least one of said evaporator, said hollow transport tube, said reservoir, and said piston are machined from a refractory material.

**Claim 3. (Previously Presented)** An evaporation source according to claim 2, wherein said refractory material is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claim 4. (Original)** An evaporation source according to claim 2, wherein at least one of said evaporator, said reservoir cylinder, said transport tube and said piston are coated with a layer of Pyrolytic Graphite (PG).

**Claims 5-7. (Canceled)**

**Claim 8. (Previously Presented)** An evaporation source according to claim 2, wherein two or more of said evaporator, said hollow transport tube and said reservoir cylinder are machined from a single piece of refractory material in essentially a concentric configuration with respect to each other.

**Claim 9. (Original)** An evaporation source according to claim 1, wherein said evaporator and said hollow transport tube are joined at a right angle to the axis of said reservoir cylinder by leak-tight flat flanges.

**Claim 10. (Original)** An evaporation source according to claim 9, wherein said reservoir cylinder is joined to said hollow transport tube and said evaporator via a passageway for said liquid metal.

**Claim 11. (Original)** An evaporation source according to claim 9, wherein said leak-tight flat flanges are attached using threaded assemblies.

**Claim 12. (Original)** An evaporation source according to claim 9, wherein said leak-tight flat flanges are attached using refractory clamps.

**Claim 13. (Original)** An evaporation source according to claim 1, wherein said evaporator and said hollow transport tube are joined at an angle ranging between 0 to 180 degrees to said reservoir cylinder along its axis by leak-tight flanges.

**Claim 14. (Original)** An evaporation source according to claim 13, wherein said reservoir cylinder is joined to said hollow transport tube and said evaporator via a passageway for said liquid metal.

**Claim 15. (Original)** An evaporation source according to claim 13, wherein said leak-tight flat flanges are attached using refractory clamps.

**Claim 16. (Original)** An evaporation source according to claim 13, wherein said leak-tight flat flanges are attached using threaded assemblies.

**Claim 17. (Previously Presented)** An evaporation source according to claim 15, wherein said refractory clamps are joined together using refractory nuts and bolts preferably made from molybdenum.

**Claim 18. (Previously Presented)** An evaporation source according to claim 15, wherein said refractory clamps are joined together using refractory nuts and bolts preferably made from densified graphite.

**Claim 19. (Currently Amended)** An evaporation source according to claim [[155]] <u>15</u>, wherein said opening in said cone-shaped vapor orifice is conically shaped to provide uniform dispersion of said evaporated metal and deliver uniform thickness deposition of said metal to coat a substrate.

**Claim 20. (Canceled)**

**Claim 21. (Previously Presented)** An evaporation source according to claim 1, wherein at least one said conducting probe is made from a non-reacting refractory material.

**Claim 22. (Previously Presented)** An evaporation source according to claim 21, wherein said refractory material is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claim 23. (Currently Amended)** An evaporation source according to claim 22, wherein said ~~conducting probes are~~ <u>at least one conducting probe is</u> insulated from ~~each other and insulated~~ from the walls of the evaporator.

**Claim 24. (Original)** An evaporation source according to claim 23, wherein said conducting probes are insulated from each other and insulated from the walls of the evaporator using non-conductive ceramic coating.

**Claim 25. (Canceled)**

**Claim 26. (Original)** An evaporation source according to claim 24, wherein at least one of said conducting probes is positioned above the surface of said liquid metal.

**Claim 27. (Original)** An evaporation source according to claim 24, wherein at least one of said conducting probes is inserted from below the surface of said liquid metal through said evaporator.

**Claim 28. (Original)** An evaporation source according to claim 21, wherein at least one of said conducting probes makes a first contact with said liquid metal on its surface and makes a second contact with said liquid metal through conductive walls of said evaporator.

**Claim 29. (Previously Presented)** An evaporation source according to claim 1, wherein said plurality of heater elements are made from refractory materials.

**Claim 30. (Previously Presented)** An evaporation source according to claim 29, wherein said refractory material is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claim 31. (Currently Amended)** An evaporation source according to claim 30, wherein said <u>plurality of</u> heater elements are configured in a serpentine or spiral fashion.

**Claims 32-39. (Canceled)**

**Claim 40. (Original)** An evaporation source according to claim 1, wherein the position of said piston in said reservoir is manually set.

**Claim 41. (Previously Presented)** An evaporation source according to claim 40, wherein said position is set using a micrometer screw attached to a linear motion vacuum feedthrough attached to a shaft driving said piston.

**Claim 42. (Original)** An evaporation source according to claim 41, wherein the position is set using a motor to drive said micrometer screw.

**Claim 43. (Original)** An evaporation source according to claim 1, wherein the position of said piston in said reservoir is automatically adjusted.

**Claim 44. (Original)** An evaporation source according to claim 43, wherein the position of said piston is automatically adjusted using an electronic feedback control circuit.

**Claim 45. (Previously Presented)** An evaporation source according to claim 44, wherein said electronic feedback control circuit senses the electrical contact resistance between said liquid metal and said at least one conducting probe.

**Claim 46. (Previously Presented)** An evaporation source according to claim 45, wherein said electronic feedback control circuit applies power to a motor that drives a micrometer screw attached to a linear motion vacuum feedthrough attached to a shaft driving said piston.

**Claim 47. (Original)** An evaporation source according to claim 1, wherein said refractory material for said source is chosen not to react with said liquid metal at temperatures required to achieve evaporation of said liquid metal.

**Claim 48. (Original)** An evaporation source according to claim 1, wherein said liquid metal is selected from the group consisting of Silver (Ag), Aluminum (Al), Gold (Au), Boron (B), Barium (Ba), Bismuth (Bi), Cadmium (Cd), Cobolt (Co), Cesium (Cs), Copper (Cu), Iron (Fe), Gallium (Ga), Gadolinium (Gd), Germanium (Ge), Mercury (Hg), Indium (In), Potassium (K), Lanthanum (La), Lithium (Li), Sodium (Na), Nickel (Ni), Lead (Pb), Palladium (Pd), Praseodymium (Pr), Platinum (Pt), Rubidium (Rb), Antimony (Sb), Scandium (Sc), Selenium (Se), Silicon (Si), Tin (Sn), Tellurium (Te), Thallium (Tl), Vanadium (V), Ytterbium (Y), and Zinc (Zn).

**Claim 49. (Currently Amended)** A liquid metal evaporation source for use in Molecular Beam Epitaxy (MBE) or vacuum deposition processes for the growth of high purity semiconductor layers, said evaporation source comprising:

a first zone maintained at a first temperature;

a second zone maintained at a second temperature lower than said first temperature; and

a third zone maintained at a third temperature lower than said second temperature; and

a conducting probe to sense a level of a liquid metal in said liquid metal evaporation source[[,]];

a nosecone coupled to said evaporator, said nosecone comprising a cylindrical body, at least one annular ring coupled to an external surface of said cylindrical body and a tapered bore from a first opening adjacent to said liquid metal to a second opening remote from said liquid metal, wherein said nosecone disperses said evaporated liquid metal from said first opening to said second opening; and

wherein said conducting probe comprises a first end coupled to said cylindrical body and a second end residing between said first opening and a surface of said liquid metal for preventing condensation of said evaporated liquid metal on said cylindrical body;

wherein each of said first, second and third zones include a heater element for sensing and regulating said first, second and third temperatures of said first, second and third zones to prevent solidification of a liquid metal; and

wherein said first, second and third zones are in fluid communication,

wherein said conducting probe transmits a signal to said evaporation source , wherein said signal is indicative of said level of said liquid metal in said evaporation source, wherein said signal is indicative of said level of said liquid metal being below a threshold level,

wherein said first, said second, and said third zones are integrally connected within a vacuum system configured to melt, transport, and evaporate liquid metal at ~~very high~~ temperatures ~~up to 2500 C~~ above the melting point of said liquid metal.

**Claim 50. (Previously Presented)** An evaporation source according to claim 49, wherein said first zone includes an evaporator, said second zone includes a hollow transport tube, and said third zone includes a reservoir with a piston.

**Claim 51. (Previously Presented)** An evaporation source according to claim 50, wherein at least one of said evaporator, said hollow transport tube and said reservoir is made from refractory material.

**Claim 52. (Previously Presented)** An evaporation source according to claim 51, wherein heater element regulates said first, second and third temperatures by infrared radiation and wherein said refractory material is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claim 53. (Original)** An evaporation source according to claim 52, wherein said refractory material does not react with said liquid metal at temperatures required for evaporation of said liquid metal.

**Claim 54. (Original)** An evaporation source according to claim 51, wherein at least one of said evaporator, said hollow transport tube and said reservoir is coated with a layer of material selected from the group consisting of Pyrolytic Graphite (PG), Pyrolytic Boron Nitride (PBN), Pyrolytic Silicon Carbide (PSiC), and Pyrolytic Aluminum Nitride (PAN).

**Claim 55. (Previously Presented)** An evaporation source according to claim 50, wherein said evaporation source includes at least one conducting probe used to sense contact with liquid metal in said evaporator.

**Claim 56. (Previously Presented)** An evaporation source according to claim 55, wherein at least one said conducting probe is made from a non-reacting refractory material.

**Claim 57. (Previously Presented)** An evaporation source according to claim 56, wherein said non-reacting refractory material is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claim 58. (Currently Amended)** An evaporation source according to claim 57, wherein said ~~conducting probes are~~ <u>at least one said conducting probe is</u> insulated from ~~each other and insulated from~~ the walls of said evaporator.

**Claim 59. (Original)** An evaporation source according to claim 58, wherein ceramic coating is said insulator.

**Claims 60-62. (Canceled)**

**Claim 63. (Original)** An evaporation source according to claim 55, wherein at least one of said conducting probes makes a first contact with said liquid metal on its surface and makes a second contact with said liquid metal through conductive walls of said evaporator.

**Claim 64. (Previously Presented)** An evaporation source according to claim 63, wherein said at least one conducting probe controls the position of said piston via an automatic feedback control circuit.

**Claim 65. (Previously Presented)** An evaporation source according to claim 64, wherein said automatic feedback control circuit drives a motor attached to said piston and regulates a constant height of said liquid metal in said evaporator.

**Claim 66. (Previously Presented)** An evaporation source according to claim 50, wherein two or more of said evaporator, said hollow transport tube, and said reservoir are machined from a single piece of refractory material in essentially a concentric configuration with respect to each other.

**Claim 67. (Original)** An evaporation source according to claim 50, wherein said evaporator and said hollow transport tube are joined at a right angle to the axis of said reservoir by leak-tight flat flanges.

**Claim 68. (Original)** An evaporation source according to claim 67, wherein said evaporation source includes a co-joining passageway for said liquid metal between said reservoir and said hollow transport tube.

**Claim 69. (Original)** An evaporation source according to claim 67, wherein said leak-tight flat flanges are attached using threaded assemblies.

**Claim 70. (Original)** An evaporation source according to claim 67, wherein said leak-tight flat flanges are attached using refractory clamps.

**Claim 71. (Original)** An evaporation source according to claim 70, wherein said refractory clamps are joined using refractory nuts and bolts.

**Claim 72. (Original)** An evaporation source according to claim 50, wherein said evaporator and said hollow transport tube are joined at an angle in the range of 0 to 180 degrees to said reservoir along its axis by leak-tight flanges.

**Claim 73. (Original)** An evaporation source according to claim 72, wherein said evaporation source includes a co-joining passageway for said liquid metal between said reservoir and said hollow transport tube.

**Claim 74. (Original)** An evaporation source according to claim 72, wherein said leak-tight flat flanges are attached using threaded assemblies.

**Claim 75. (Original)** An evaporation source according to claim 72, wherein said leak-tight flat flanges are attached using refractory clamps.

**Claim 76. (Original)** An evaporation source according to claim 75, wherein said refractory clamps are joined together using refractory nuts and bolts.

**Claim 77. (Previously Presented)** An evaporation source according to claim 50, wherein said evaporator includes an evaporator cone-shaped vapor orifice having at least one said conducting probe disposed therein.

**Claim 78. (Previously Presented)** An evaporation source according to claim 77, wherein said evaporator cone-shaped vapor orifice comprises a conically shaped opening configured to provide uniform dispersion of said evaporated metal and deliver a uniform deposition of said metal on a substrate.

**Claims 79-80. (Canceled)**

**Claim 81. (Previously Presented)** An evaporation source according to claim 49, wherein at least one of said heater elements is made from refractory materials.

**Claim 82. (Previously Presented)** An evaporation source according to claim 81, wherein at least one of said heater elements is configured in a serpentine or spiral fashion.

**Claim 83. (Previously Presented)** An evaporation source according to claim 49, wherein at least one of said heater elements is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claims 84-91. (Canceled)**

**Claim 92. (Original)** An evaporation source according to claim 50, wherein the position of said piston in said reservoir is manually set.

**Claim 93. (Previously Presented)** An evaporation source according to claim 92, wherein said position is set using a micrometer screw attached to a linear motion vacuum feedthrough attached to a shaft driving said piston.

**Claim 94. (Original)** An evaporation source according to claim 93, wherein the position is set using a motor to drive said micrometer screw.

**Claim 95. (Original)** An evaporation source according to claim 50, wherein the position of said piston in said reservoir is automatically adjusted.

**Claim 96. (Original)** An evaporation source according to claim 95, wherein the position of said piston is automatically adjusted using an electronic feedback control circuit.

**Claim 97. (Original)** An evaporation source according to claim 96, wherein said electronic feedback control circuit senses the electrical contact resistance between said liquid metal and said conducting probes.

**Claim 98. (Previously Presented)** An evaporation source according to claim 97, wherein said electronic feedback control circuit applies power to a motor that drives a micrometer screw attached to a linear motion vacuum feedthrough attached to a shaft driving said piston.

**Claim 99. (Original)** An evaporation source according to claim 51, wherein said refractory material for said source is chosen not to react with said liquid metal at temperatures required to achieve evaporation of said liquid metal.

**Claim 100. (Original)** An evaporation source according to claim 49, wherein said liquid metal is selected from the group consisting of Silver (Ag), Aluminum (Al), Gold (Au), Boron (B), Barium (Ba), Bismuth (Bi), Cadmium (Cd), Cobolt (Co), Cesium (Cs), Copper (Cu), Iron (Fe), Gallium (Ga), Gadolinium (Gd), Germanium (Ge), Mercury (Hg), Indium (In), Potassium (K), Lanthanum (La), Lithium (Li), Sodium (Na), Nickel (Ni), Lead (Pb), Palladium (Pd), Praseodymium (Pr), Platinum (Pt), Rubidium (Rb), Antimony (Sb), Scandium (Sc), Selenium (Se), Silicon (Si), Tin (Sn), Tellurium (Te), Thallium (Tl), Vanadium (V), Ytterbium (Y), and Zinc (Zn).

**Claim 101. (Currently Amended)** A liquid metal evaporation source for use in Molecular Beam Epitaxy (MBE) or vacuum deposition processes, said evaporation source comprising:

an evaporator for the growth of high purity semiconductor layers, wherein said evaporator comprises a first heater element of a plurality of heater elements for maintaining a first temperature;

a transport tube, said transport tube comprises a second heater element of said plurality of heater elements for maintaining said transport tube at a second temperature;

a reservoir with a piston, wherein said reservoir comprises a third heater element of said plurality of heater elements for maintaining said reservoir at a third temperature, wherein second temperature being less than said first temperature and said second temperature being greater than said third temperature;

~~a cone-shaped vapor orifice disposed at said evaporator, wherein said cone shaped vapor orifice comprises a fourth heater element of said plurality of heater elements for maintaining a fourth temperature; and~~

<u>a nosecone coupled to said evaporator, wherein said nosecone comprises a cylindrical body, at least one annular ring coupled to an external surface of said cylindrical body and a tapered bore from a first opening adjacent to said liquid metal to a second opening remote from said liquid metal, wherein said nosecone disperses evaporated liquid metal from said first opening to said second opening; and</u>

at least two conducting probes, a first conducting probe disposed at said evaporator for sensing a height of a liquid metal in said evaporator, and a second conducting probe disposed at

said ~~cone-shaped vapor orifice~~ tapered bore for sensing a height of said liquid metal in said orifice;

wherein said first conducting probe comprises a first end coupled to said cylindrical body and a second end residing between said first opening and said liquid metal for preventing condensation of said evaporated liquid metal on said cylindrical body;

wherein said first probe is in thermal communication with said evaporator and said second probe is in thermal communication with said cone-shaped vapor orifice to maintain said height of said liquid metal in said evaporator, said first and said second probes communicating with said piston to control a flow of said liquid metal to said evaporator,

wherein said first heater element, via a first thermocouple, senses and regulates said first temperature, and wherein said second heater element, via a second thermocouple, senses and maintains a second temperature, and said third heater element, via a third thermocouple, sense and maintains a third temperature,

wherein each of said plurality of heater elements heat said evaporator, said transport tube and said reservoir by infrared radiation to prevent solidification of liquid metal in said evaporator, said transport tube and said reservoir;

wherein said evaporator, said transport tube and said reservoir are in fluid communication; and

wherein said reservoir cylinder, said transport tube, and said evaporator are integrally connected within a vacuum system configured to melt, transport, and evaporate liquid metal at ~~very high~~ temperatures ~~up to 2500 C~~ above the melting point of said liquid metal.

**Claim 102. (Currently Amended)** An evaporation source according to claim 101, wherein said evaporator is maintained at a ~~high~~ temperature for evaporating said liquid metal.

**Claim 103. (Previously Presented)** An evaporation source according to claim 101, wherein said transport tube is maintained at a temperature lower than said evaporator.

**Claim 104. (Previously Presented)** An evaporation source according to claim 101, wherein said reservoir is maintained at a lower temperature than said transport tube.

**Claim 105. (Previously Presented)** An evaporation source according to claim 101, wherein at least one of said evaporator, said transport tube and said reservoir is made from refractory material.

**Claim 106. (Previously Presented)** An evaporation source according to claim 105, wherein said refractory material is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claim 107. (Original)** An evaporation source according to claim 105, wherein said refractory material does not react with said liquid metal at temperatures required for evaporation of said liquid metal.

**Claim 108. (Original)** An evaporation source according to claim 101, wherein at least one of said evaporator, said transport tube and said reservoir is coated with a layer of material selected from the group consisting of Pyrolytic Graphite (PG), Pyrolytic Boron Nitride (PBN), Pyrolytic Silicon Carbide (PSiC), and Pyrolytic Aluminum Nitride (PAN).

**Claim 109. (Previously Presented)** An evaporation source according to claim 101, wherein conducting probes are used to sense contact with liquid metal in said evaporator.

**Claim 110. (Previously Presented)** An evaporation source according to claim 109, wherein one of said at least two conducting probes is made from a non-reacting refractory material.

**Claim 111. (Previously Presented)** An evaporation source according to claim 110, wherein said non-reacting refractory material is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claim 112. (Original)** An evaporation source according to claim 111, wherein said conducting probes are insulated from each other and insulated from the walls of said evaporator.

**Claim 113. (Original)** An evaporation source according to claim 112, wherein ceramic coating is said insulator.

**Claim 114. (Canceled)**

**Claim 115. (Previously Presented)** An evaporation source according to claim 109, wherein one of said at least two conducting probes is positioned above the surface of said liquid metal.

**Claim 116. (Previously Presented)** An evaporation source according to claim 109, wherein one of said at least two conducting probes is inserted from below the surface of said liquid metal through said evaporator.

**Claim 117. (Previously Presented)** An evaporation source according to claim 109, wherein one of said at least two conducting probes makes a first contact with said liquid metal on its surface and makes a second contact with said liquid metal through conductive walls of said evaporator.

**Claim 118. (Previously Presented)** An evaporation source according to claim 109, wherein one of said at least two conducting probes controls the position of said piston via an automatic feedback control circuit.

**Claim 119. (Previously Presented)** An evaporation source according to claim 118, wherein said automatic feedback control circuit drives a motor attached to said piston and regulates a constant height of said liquid metal in said evaporator.

**Claim 120. (Previously Presented)** An evaporation source according to claim 101, wherein two or more of said evaporator, said transport tube, and said reservoir are machined from a single piece of refractory material in essentially a concentric configuration with respect to each other.

**Claim 121. (Original)** An evaporation source according to claim 101, wherein said evaporator and said transport tube are joined at a right angle to the axis of said reservoir by leak-tight flat flanges.

**Claim 122. (Original)** An evaporation source according to claim 121, wherein said evaporation source includes a co-joining passageway for said liquid metal between said reservoir and said transport tube.

**Claim 123. (Original)** An evaporation source according to claim 121, wherein said leak-tight flat flanges are attached using threaded assemblies.

**Claim 124. (Original)** An evaporation source according to claim 121, wherein said leak-tight flat flanges are attached using refractory clamps.

**Claim 125. (Original)** An evaporation source according to claim 124, wherein said refractory clamps are joined using refractory nuts and bolts.

**Claim 126. (Original)** An evaporation source according to claim 101, wherein said evaporator and said transport tube are joined at an angle in the range of 0 to 180 degrees to said reservoir along its axis by leak-tight flanges.

**Claim 127. (Original)** An evaporation source according to claim 126, wherein said evaporation source includes a co-joining passageway for said liquid metal between said reservoir and said transport tube.

**Claim 128. (Original)** An evaporation source according to claim 126, wherein said leak-tight flat flanges are attached using threaded assemblies.

**Claim 129. (Original)** An evaporation source according to claim 126, wherein said leak-tight flat flanges are attached using refractory clamps.

**Claim 130. (Original)** An evaporation source according to claim 129, wherein said refractory clamps are joined together using refractory nuts and bolts.

**Claim 131. (Previously Presented)** An evaporation source according to claim 101, wherein said cone-shaped vapor orifice comprises a conically shaped opening configured to provide uniform dispersion of said evaporated metal and deliver a uniform disposition of said metal on a substrate.

**Claim 132. (Canceled)**

**Claim 133. (Previously Presented)** An evaporation source according to claim 101, wherein said heater element is made from refractory materials.

**Claim 134. (Previously Presented)** An evaporation source according to claim 133, wherein said heater element is densified graphite having an efficient black-body radiation absorption, wherein said densified graphite reduces the required heating element power required to achieve a selected operating temperature.

**Claim 135. (Previously Presented)** An evaporation source according to claim 134, wherein said heater element is configured in a serpentine or spiral fashion.

**Claims 136-143. (Canceled)**

**Claim 144. (Original)** An evaporation source according to claim 101, wherein the position of said piston in said reservoir is manually set.

**Claim 145. (Previously Presented)** An evaporation source according to claim 144, wherein said position is set using a micrometer screw attached to a linear motion vacuum feedthrough attached to a shaft driving said piston.

**Claim 146. (Original)** An evaporation source according to claim 145, wherein the position is set using a motor to drive said micrometer screw.

**Claim 147. (Original)** An evaporation source according to claim 101, wherein the position of said piston in said reservoir is automatically adjusted.

**Claim 148. (Original)** An evaporation source according to claim 147, wherein the position of said piston is automatically adjusted using an electronic feedback control circuit.

**Claim 149. (Previously Presented)** An evaporation source according to claim 148, wherein said electronic feedback control circuit senses the electrical contact resistance between said liquid metal and one of said at least two conducting probes.

**Claim 150. (Previously Presented)** An evaporation source according to claim 149, wherein said electronic feedback control circuit applies power to a motor that drives a micrometer screw attached to a linear motion vacuum feedthrough attached to a shaft driving said piston.

**Claim 151. (Original)** An evaporation source according to claim 101, wherein said refractory material for said source is chosen not to react with said liquid metal at temperatures required to achieve evaporation of said liquid metal.

**Claim 152. (Original)** An evaporation source according to claim 101, wherein said liquid metal is selected from the group consisting of Silver (Ag), Aluminum (Al), Gold (Au), Boron (B), Barium (Ba), Bismuth (Bi), Cadmium (Cd), Cobolt (Co), Cesium (Cs), Copper (Cu), Iron (Fe), Gallium (Ga), Gadolinium (Gd), Germanium (Ge), Mercury (Hg), Indium (In), Potassium (K), Lanthanum (La), Lithium (Li), Sodium (Na), Nickel (Ni), Lead (Pb), Palladium (Pd), Praseodymium (Pr), Platinum (Pt), Rubidium (Rb), Antimony (Sb), Scandium (Sc), Selenium (Se), Silicon (Si), Tin (Sn), Tellurium (Te), Thallium (Tl), Vanadium (V), Ytterbium (Y), and Zinc (Zn).

**Claim 153. (Original)** An evaporator source according to claim 1, wherein a maximum permissible gap between said reservoir cylinder inner diameter and said piston cylinder outer diameter is configured to contain the liquid metal within said reservoir by the surface tension of the liquid metal and is calculated by the formula:

$$\Delta = \frac{2\gamma}{[\rho g h]},$$

wherein $\Delta$ is the maximum permissible gap;

wherein $\gamma$ is the liquid metal surface tension;

wherein $\rho$ is the density of the liquid metal;

wherein g is the gravitational constant; and

wherein h is the vertical height difference between the liquid metal in the evaporator above the piston surface.

**Claim 154. (Original)** An evaporator source according to claim 101, wherein a maximum permissible gap between said reservoir cylinder inner diameter and said piston cylinder outer diameter is configured to contain the liquid metal within said reservoir by the surface tension of the liquid metal and is calculated by the formula:

$$\Delta = \frac{2\gamma}{[\rho g h]},$$

wherein $\Delta$ is the maximum permissible gap;

wherein $\gamma$ is the liquid metal surface tension;

wherein $\rho$ is the density of the liquid metal;

wherein g is the gravitational constant; and

wherein h is the vertical height difference between the liquid metal in the evaporator above the piston surface.

**Claim 155. (Previously Presented)** An evaporator source according to claim 1, wherein a cone-shaped vapor orifice is disposed at said evaporator to permit said evaporated metal to escape through an opening in said cone-shaped vapor orifice, at least one said conducting probe disposed therein.